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1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE WESTERN DISTRICT OF MICHIGAN
3

4 SIERRA CLUB, Civil Action No. 1:08-cv-1183
5 Plaintiff, Paul L. Maloney
6 vs. Chief U.S. District Judge
7 CITY OF HOLLAND, MICHIGAN and
8 HOLLAND BOARD OF PUBLIC WORKS,
9 Defendants.
10 -----
11

12 DEPONENT: LOREN HOWARD

13 DATE: Thursday, October 21, 2010

14 TIME: 8:00 A.M.

15 LOCATION: Doubletree Hotel

16 650 East 24th Street

17 Holland, Michigan

18 REPORTER: Dawn M. Spaeth, CSR-1458
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<p style="text-align: right;">Page 4</p> <p>1 Holland, Michigan 2 October 21, 2010 3 ***** 4 (Deposition Exhibit 14 marked.) 5 LOREN HOWARD, 6 after having first been duly sworn by the Notary 7 Public to tell the truth, the whole truth and nothing 8 but the truth, testified as follows: 9 EXAMINATION 10 BY MR. BENDER: 11 Q. Good morning. Can you start by spelling your name? 12 A. Loren, L-o-r-e-n, Howard, H-o-w-a-r-d. 13 Q. Good morning, Mr. Howard. My name is Dave Bender. I 14 represent the Sierra Club in this case. We're here 15 for a deposition in Sierra Club versus City of 16 Holland and the Holland Board of Public Works, Case 17 Number 1:08-cv-1183. You are here pursuant to a 18 Notice of Deposition; is that correct? 19 A. Yes. 20 Q. I'm handing you Exhibit 14. Have you seen that 21 Exhibit before? 22 A. I have. 23 Q. Is that the Notice of Deposition? 24 A. Yes. 25 Q. Before we get started, Mr. Howard, just a few rules.</p>	<p style="text-align: right;">Page 6</p> <p>1 Q. One contract dispute case and one product liability 2 case? 3 A. Yes. 4 Q. How long ago were those cases? 5 A. The labor one was three or four years ago. The 6 contract dispute was 15 years ago. Product liability 7 was like 30 years ago. 8 Q. Who was the plaintiff in the labor case? 9 A. David Durham. 10 Q. And was the contract dispute case with Westinghouse? 11 A. Yes. 12 Q. And what piece of equipment was at issue? 13 A. It was a contract on the installation of some control 14 systems at the James De Young Power Plant. 15 Q. Have you ever testified in court? 16 A. I don't think so, no. 17 Q. Have you testified in any hearings -- or other than 18 those three depositions, any other hearings or any 19 other time you've testified under oath? 20 A. I have testified under oath before the Public Service 21 Commission in Michigan. I believe the Federal Energy 22 Regulatory Commission. 23 Q. How often have you testified before those two bodies? 24 A. Just once each, I think. 25 Q. How long ago was the Michigan PSC case?</p>
<p style="text-align: right;">Page 5</p> <p>1 The court reporter can only record one of us at a 2 time. I'll try to let you finish before I ask 3 anything further if you can let me finish my question 4 before answering. It will make it easier and shorter 5 in the long run; okay? 6 A. Okay. 7 Q. All right. If I ask any questions that you don't 8 understand, let me know, I'll try to rephrase it or 9 clarify it if I can. I just want to make sure that 10 you know what I'm asking before answering; okay? 11 A. Okay. 12 Q. And then, lastly, if you need a break, just let us 13 know, we'll take breaks as needed. I would just ask 14 that if there's a question pending, you answer it 15 before we take a break; okay? 16 A. Okay. 17 Q. Have you been deposed in any other cases before? 18 A. Yes. 19 Q. What cases were those? 20 A. There's some labor matters and a contract dispute 21 years ago. There was a product liability case. 22 Those are the ones I recall. 23 Q. Mr. Howard, you said you were deposed in -- was it 24 one labor case? 25 A. Yes.</p>	<p style="text-align: right;">Page 7</p> <p>1 A. Both of those were about 15 plus years ago. 2 Q. What were the issues in those cases? 3 A. It was our gas pipeline we were installing. It was 4 pipeline. 5 Q. Is that the pipeline to the 48th Street plant? 6 A. Correct. 7 Q. Mr. Howard, you are currently employed by the Holland 8 Board of Public Works; is that correct? 9 A. Yes. 10 Q. What's your current job title? 11 A. General manager. 12 Q. How long have you had that job title? 13 A. Three and a half years. 14 Q. So since beginning of 2007? 15 A. (Nods head.) Correct. 16 Q. One other -- 17 A. Don't shake your head or say uh-huh, say yes or no. 18 Q. Has to be verbal answers. Thank you. 19 What are your job duties as general 20 manager? 21 A. I'm responsible for all the operations of the 22 Holland Board of Public Works, so. 23 Q. Generally what does that entail? 24 A. How would I describe that. General responsibility 25 for the functions of the electric, water, wastewater,</p>

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<p style="text-align: right;">Page 8</p> <p>1 fiberoptic systems, work directly with our Board of 2 Directors making sure that the policies and goals 3 that they establish are implemented in the 4 organization. 5 Q. Do you oversee operations? Labor? 6 A. Everything. 7 Q. Contracts? Everything? 8 A. Everything. 9 Q. And prior to 2007, what was your job title? 10 A. My job title immediately prior to that was the 11 director of electric transmission, distribution, and 12 technology. 13 Q. How long did you have that job title? 14 A. Three years. 15 Q. So roughly 2004 through 2007? 16 A. Correct. 17 Q. What were your job duties in that position? 18 A. Responsible for the electric 19 transmission/distribution group, which deals with the 20 poles and wires, delivery of electricity to our 21 customers, and also technology, which included the 22 computer systems and our fiberoptics systems. 23 Q. Does the electric transmission and distribution group 24 include generation? 25 A. No, it does not.</p>	<p style="text-align: right;">Page 10</p> <p>1 to entice them to come to town. 2 Q. So prospective businesses come into town? 3 A. Correct. 4 Q. How long have you worked for the 5 Board of Public Works? 6 A. Since 1987. 7 Q. So before 1998 when you became marketing director, 8 what was your job title with Board of Public Works? 9 A. Power resources director. 10 Q. How long did you have that job title? 11 A. The title, five years, maybe a little longer. 12 Q. So about 1993? 13 A. Sounds about right. 14 Q. You say job title. Is it essentially the same job as 15 a prior job title? 16 A. Pretty much. Prior to then there was a -- I think 17 his title was electric director of electric 18 services. He retired and my title prior to that was 19 superintendent of electric production. So I oversaw 20 all electric production. I continued to do that. My 21 responsibilities as power resources director -- the 22 responsibilities of the electric director were 23 divided between superintendent of electric 24 transmission/distribution and the superintendent of 25 electric production, which was me. Essentially that</p>
<p style="text-align: right;">Page 9</p> <p>1 Q. Did you have a counterpart that oversaw the electric 2 generation at that time? 3 A. There was another director who oversaw the generating 4 functions of the utility, yes. 5 Q. Who was that? 6 A. David Koster. 7 Q. Prior to 2004, did you work for the 8 Board of Public Works? 9 A. Yes. 10 Q. Prior to 2004, what was your job title? 11 A. Marketing director. 12 Q. How long were you in that position? 13 A. Five years. 14 Q. So 1999 through 2004? 15 A. 1998. 16 Q. What were your job duties as marketing director? 17 A. At that time I also oversaw the technology -- I 18 didn't have technology in the title, but I also 19 oversaw technology, computer systems, but principally 20 the job was customer service, community relations. 21 So any marketing efforts that the Board had. 22 Q. Who does the Board market to? 23 A. Well, all of our customers, working with the 24 customers when customers come to town, more potential 25 customers come to town, go through a marketing effort</p>	<p style="text-align: right;">Page 11</p> <p>1 job was eliminated at that time. 2 Q. That was in '93? 3 A. I don't recall the exact time, but more or less about 4 that time, yes. 5 Q. So in 1993 your predecessor retired and they split 6 the position? 7 A. Kind of eliminated the position, and superintendent 8 of electric transmission and distribution, electric 9 director had some responsibilities in terms of 10 planning for electric transmission/distribution 11 expansions, planning for electric generation projects 12 and doing some reporting to the Board, and so those 13 duties were split between the two superintendents. 14 Essentially the job at that point was eliminated. 15 Q. I think I understand that. 16 As power resources director, what were your 17 job duties? 18 A. Oversaw all of the electric generation facilities for 19 the Holland Board of Public Works. 20 Q. That would be the James De Young Plant, the 21 48th Street Plant, and the 6th Street Plant? 22 A. Correct. 23 Q. Are there any other generation facilities? 24 A. Not within our system. Of course, we have ownership 25 in two other projects. Responsible for our</p>

5 (Pages 8 to 11)

<p style="text-align: right;">Page 12</p> <p>1 interaction with those contracts also.</p> <p>2 Q. That would be Campbell 3 and Belle River?</p> <p>3 A. Correct.</p> <p>4 Q. So then you became power resource director in 1993.</p> <p>5 Prior to that you were superintendent of electric</p> <p>6 production?</p> <p>7 A. Correct.</p> <p>8 Q. How long did you hold that job title?</p> <p>9 A. That was my title when I came to the Board in 1997.</p> <p>10 Q. 1987?</p> <p>11 A. Yes.</p> <p>12 Q. What were your job duties as superintendent of</p> <p>13 electric production?</p> <p>14 A. Pretty much everything I just described, responsible</p> <p>15 for the James De Young Plant, the 48th Street Peaking</p> <p>16 Station as it came into being, 6th Street. The</p> <p>17 Campbell Plant and the Belle River Plant were duties</p> <p>18 that the electric director pretty much took care of.</p> <p>19 So in those first years I didn't interact a lot with</p> <p>20 those contracts.</p> <p>21 Q. Prior to coming to the Holland Board of Public Works,</p> <p>22 did you work in the electric generation field?</p> <p>23 A. I worked in a paper mill and worked in the powerhouse</p> <p>24 in a paper mill.</p> <p>25 Q. Which paper mill is that?</p>	<p style="text-align: right;">Page 14</p> <p>1 A. No.</p> <p>2 Q. So was your first job relating to steam boilers your</p> <p>3 job at PCI in 1982?</p> <p>4 A. Yes.</p> <p>5 Q. Are you a professional engineer?</p> <p>6 A. Yes.</p> <p>7 Q. When did you receive your professional engineer</p> <p>8 license?</p> <p>9 A. 1977.</p> <p>10 Q. Did you work anywhere between, or did you receive</p> <p>11 your PE license right out of school?</p> <p>12 A. No.</p> <p>13 Q. When did you graduate from the engineering school,</p> <p>14 college?</p> <p>15 A. With my engineering degree?</p> <p>16 Q. Yes.</p> <p>17 A. December of 1971.</p> <p>18 Q. Between 1971 and 1982, you did not hold any jobs that</p> <p>19 involved steam generation; is that correct?</p> <p>20 A. Correct.</p> <p>21 Q. Did your job at the PCI in Filer City involve</p> <p>22 maintenance of steam generating boilers?</p> <p>23 A. Yes.</p> <p>24 Q. So since 1982 until 1998, all of your jobs involved</p> <p>25 some amount of maintenance of steam boilers; is that</p>
<p style="text-align: right;">Page 13</p> <p>1 A. It's the Packaging Corporation of America mill in</p> <p>2 Filer City, Michigan.</p> <p>3 Q. How long did you work there?</p> <p>4 A. Five years.</p> <p>5 Q. '82 to '87?</p> <p>6 A. Correct.</p> <p>7 Q. What were your job duties in that job?</p> <p>8 A. My title was superintendent of utilities, responsible</p> <p>9 for the power facilities, power production facilities</p> <p>10 in the paper mill, the waste treatment facilities at</p> <p>11 the paper mill, and I call them water purification</p> <p>12 facilities in the mill.</p> <p>13 Q. Prior to beginning that job in '82, were you</p> <p>14 employed?</p> <p>15 A. Yes.</p> <p>16 Q. Where were you employed?</p> <p>17 A. Employed at Century Boat Company.</p> <p>18 Q. C-e-n --</p> <p>19 A. -- t-u-r-y, Boat Company.</p> <p>20 Q. What did you do at Century Boat Company?</p> <p>21 A. I had various responsibilities there. I was a</p> <p>22 production engineer, maintenance supervisor, managed</p> <p>23 some of their technology, their computer systems.</p> <p>24 Q. Was steam generation part of the production process</p> <p>25 at that Century Boat Company?</p>	<p style="text-align: right;">Page 15</p> <p>1 correct?</p> <p>2 A. That's correct.</p> <p>3 Q. And your current job involves some amount of</p> <p>4 maintenance, involvement in maintenance projects at</p> <p>5 the De Young boilers; is that correct?</p> <p>6 A. I have a very high oversight responsibility for that,</p> <p>7 but I don't get directly involved with that on a</p> <p>8 day-to-day basis.</p> <p>9 Q. In your current job, are you aware when maintenance</p> <p>10 projects are being done at the James De Young Plant?</p> <p>11 MR. KARG: Object to the form of the</p> <p>12 question.</p> <p>13 A. I'm not sure I understand the scope of your question.</p> <p>14 Q. (By Mr. Bender) You know what I mean by maintenance</p> <p>15 projects, right?</p> <p>16 A. Yes.</p> <p>17 Q. And they occur at the James De Young Plant, I assume?</p> <p>18 A. Yes.</p> <p>19 Q. In your current job are you aware when those</p> <p>20 maintenance jobs are occurring at the</p> <p>21 James De Young Plant?</p> <p>22 A. Not every one.</p> <p>23 Q. You're aware of some of them?</p> <p>24 A. Sure.</p> <p>25 Q. How do you become aware of them?</p>

6 (Pages 12 to 15)

<p style="text-align: right;">Page 84</p> <p>1 Q. The life of what it is you're doing is the same as 2 how often you expect to do it, correct? 3 A. Yeah. 4 Q. If you expect the wear plates on a pulverizer to wear 5 out every year, you expect to have to do that project 6 every year? 7 A. Every year. The cost of doing that is incurred in 8 this year. The value of what I've done is incurred 9 in this year, and that's only this year. So I don't 10 have to carry the cost of that again on a two or 11 three-year basis. There's some things you might have 12 to do every two or three years or every five years. 13 So in terms of just simply accurately 14 reflecting what the cost of running your operations 15 is, what you want to do, you have rates and you set 16 rates based on -- it's not on cash flow. It's on 17 what is the expense. You make a -- in this case the 18 waterwall tubes, what, a couple hundred thousand 19 dollars to replace something like that. That is a 20 life over which it's useful that you've done, and 21 when you're billing your rates that you want to 22 charge for your utility, you want to have it 23 reflect -- you wouldn't say, okay, I spent \$200,000 24 in this year so I have to raise my rates to cover 25 that this year. You're going to say, okay, well, I</p>	<p style="text-align: right;">Page 86</p> <p>1 THE WITNESS: Yeah, I was thinking the same 2 thing. 3 MR. KARG: Ten minutes. 4 (Break taken from 10:20 to 10:30 a.m.) 5 Q. (By Mr. Bender) Earlier when I asked which projects 6 you provided information on to respond to 7 interrogatories, you listed the snow melt system, 8 correct? 9 A. Yes. 10 Q. Were you involved in the project to install the snow 11 melt system? 12 A. Yes. 13 Q. Were you in charge of overseeing that project for the 14 Board? 15 A. Yes. Well, at the plant, yes. Not like downtown. 16 Q. Okay. 17 A. So there's obviously all of the piping downtown. I 18 wasn't in charge of the installation of that, no. 19 The work at the James De Young Plant, yes. 20 Q. Within the fence line of the James De Young Plant, 21 you were in charge of that work? 22 A. Yes. 23 Q. What was involved at the plant to install the snow 24 melt system? 25 A. We added some pumps and some piping to take water</p>
<p style="text-align: right;">Page 85</p> <p>1 spent the money, but I am going to recover that back 2 over the life of whatever it is I've done. 3 Virtually everything is done that way. 4 Some things are simply expensed. Some things that 5 have a pretty -- is going to be done just every year 6 or on a fairly regular basis. So the time period 7 over which you do it decides whether you say -- the 8 only distinction between expensing and capitalizing 9 is really across more than one year. 10 The definition I think typical is if you're 11 going to expense something, that means it's charged 12 against this year. If you're going to capitalize it, 13 you're going to charge that against multiple years. 14 Q. So a project that's capitalized is paid for with 15 rates collected over a number of years? 16 A. Right. 17 Q. And something that's expensed is collected out of the 18 rate, it's in the rate base that's recovered this 19 year? 20 A. Right. 21 Q. Projects that are preventative maintenance projects, 22 grease, oil, other lubrication, those kind of things 23 are expensed, correct? 24 A. Yes. 25 MR. BENDER: Take a break?</p>	<p style="text-align: right;">Page 87</p> <p>1 from Unit 3 to send it to snow melt. Scope of the 2 work at the plant was installation of two pumps at 3 that time and the piping to take condenser water from 4 Unit 3 as it's supplied to the pumps. 5 Q. Did you have to cut into the condenser to attach 6 piping to it? 7 A. Not the condenser proper itself. The discharge 8 piping from the condenser. 9 Q. So the condenser on Unit 3 has a pipe leading to a 10 tunnel that then discharges out into the lake, 11 correct? 12 A. Correct. 13 Q. So between the condenser and that tunnel, you had to 14 cut into the pipe and install something? 15 A. Pipe. 16 Q. Another pipe? 17 A. Right. We attached a pipe to -- the discharge pipe 18 coming out of Unit 3 condenser is about 36 inches. 19 We attached a 12-inch pipe to that. 20 Q. Is there a valve then to direct water that would 21 otherwise go to the tunnel into the snow melt system? 22 A. Actually, I think there are two valves that you 23 work, yes. 24 Q. So you added those valves too? 25 A. Yes.</p>

24 (Pages 84 to 87)

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1 Q. And then did you have to add -- so you had a 12-inch
2 pipe coming out of the condenser discharge?
3 A. 36.
4 Q. 36 that was originally coming out of it, correct?
5 A. Well, it still comes out.
6 Q. Originally and still comes out, and then you attached
7 the snow melt system pipe which is a 12-inch pipe?
8 A. Correct.
9 Q. And then where does that 12-inch pipe lead to?
10 A. Leads to the pumps. So there's a 12-inch pipe that
11 leads from the condenser discharge pipe, leads over
12 to the pumps, which then pump in other 12-inch pipe
13 going up to the snow melt system.
14 Q. So is it just then, leaving the pumps for snow melt,
15 is that a 12-inch pipe and it just leaves the Holland
16 Board of Public Works James De Young property?
17 A. Well, it goes up to snow melt, but it comes back.
18 Q. And then when it comes back, where does the return
19 water go to?
20 A. Exactly where -- in the same tunnel where the 36-inch
21 discharge pipe goes in. So the water goes back into
22 that same spot essentially where it takes the water
23 from.
24 Q. Does it go back into the condenser discharge pipe?
25 A. No. It goes in the tunnel.

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1 Q. Straight into the tunnel?
2 A. Yes.
3 Q. And the water leaving the snow melt system -- I'm
4 sorry, the water leaving the condenser on 3 and going
5 into the snow melt system, what temperature is that
6 water?
7 A. Depends.
8 Q. Okay. What's the range?
9 A. Snow melt runs in the wintertime, so in the
10 summertime water doesn't go through the snow melt.
11 There's still water in it, but there is no water
12 flowing through it.
13 In the wintertime the temperature that goes
14 to snow melt -- first of all, there's lake
15 temperature, whichever the lake temperature is, and
16 that typically is 40 degrees by the time you get to
17 dead of winter, some number like that 40, 45
18 degrees. The water then goes to the condenser and
19 the condenser, that's cooling water. So the water
20 comes in. The water is heated up because it's
21 transferring heat from the steam to the condenser
22 cooling water. So the water gets heated up, and so
23 the discharge of that condenser cooling, the water
24 then goes to snow melt, and so the condenser
25 typically adds, I don't know,

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1 20 degrees to the temperature of the water, and
2 that's irrespective whether it's summer or winter,
3 just whatever the temperature of the lake coming in,
4 the temperature of the condenser discharge is 10 to
5 20 degrees more than whatever lake temperature is,
6 and the lake temperature varies from the wintertime
7 40 to 45 degrees to maybe 80 degrees in the summer.
8 Q. 10 to 20 degrees increase from the condenser
9 Fahrenheit?
10 A. Yes. We're talking Fahrenheit, yes.
11 Q. That's for Unit 3. Is that similar to Units 4 and 5,
12 do they add -- the condensers add roughly 10 to
13 20 degrees of heat?
14 A. I would know a bit more about 3. Probably something
15 in that range. I'm not sure exactly what the
16 temperature rise of the condenser cooling water is.
17 Probably something similar to that. Depends upon the
18 design of the units. I just don't recall how much
19 temperature-wise is on 3, 4, and 5 exactly. 10,
20 20 degrees, something like that probably.
21 Q. That temperature increase is a transfer from the
22 steam exiting the turbine and going into the
23 condenser, correct?
24 A. Yes. The steam exits the turbine, goes to the
25 condenser in the steam turbine. Lake water is on the

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1 inside of the little tubes in there and the steam is
2 on the outside. When the steam hits the cool
3 condenser tubes, it recondenses it back to water and
4 it goes back in the boiler.
5 Q. Then the lake water going through the tubes absorbs
6 that heat?
7 A. Yes.
8 Q. So the boiler has to be producing steam for the snow
9 melt system to work?
10 A. That's correct.
11 Q. Is there a minimum amount of steam that the boiler
12 needs to be producing for the snow melt system to
13 work?
14 A. Hard to answer that question the way you've asked
15 it. Theoretically, no.
16 Q. Is there a minimum amount of steam that the boiler
17 has to produce for the snow melt system to work to
18 melt snow?
19 A. Practically, yes.
20 Q. Do you know what that minimum amount of steam is?
21 A. Again, I'm hesitating. The way you asked the
22 question, no, I don't.
23 Q. What's the minimum load that Unit 3 is able to run
24 at?
25 A. For its megawatts, 4, 5 megawatts.

25 (Pages 88 to 91)

<p style="text-align: right;">Page 92</p> <p>1 Q. At 4 to 5 megawatts, does Unit 3 produce a sufficient 2 amount of steam for the snow melt system to melt 3 snow? 4 MR. KARG: Object to the form. 5 A. Sure, yes. 6 Q. (By Mr. Bender) Under all winter conditions? 7 A. No. 8 Q. Under what winter conditions is 4 to 5 megawatts load 9 operation capable of melting snow? 10 A. I don't know exactly. Probably not many winter 11 conditions. 12 Q. So for most winter conditions, Unit 3 has to operate 13 above 4 to 5 megawatts for the snow melt system to 14 work to melt snow? 15 A. Yes. 16 Q. Under most winter conditions, how much steam or 17 translated to megawatts does Unit 3 need to produce 18 to be able to practically melt snow -- 19 MR. KARG: Object to the form. 20 Q. -- as a practical matter to work to melt snow? 21 MR. KARG: Same objection. 22 A. Full load. 23 Q. (By Mr. Bender) Pardon me? 24 A. Full load. 25 Q. So is it typical that Unit 3 operates at full load</p>	<p style="text-align: right;">Page 94</p> <p>1 whether it's winter or summer or whatever. It's most 2 efficient -- most generating units operate at their 3 lowest cost when they are fully loaded. 4 Q. Does Unit 3 operate on its full load most of the 5 time? 6 A. Most of the time. 7 Q. What percentage of the time is it operating at its 8 full load? 9 A. An exact percentage, I don't know, 80, 90 percent of 10 the time it's operating it's set at a fixed load near 11 its full output capacity. It's name plate, it's 12 11 1/2 megawatts unit. It operates at 13 10 megawatts, 10 1/2 megawatts when it's on line. 14 Pretty typical. 15 Q. And it's online 80 to 90 percent of the time? 16 A. Yes. 17 Q. Has that always been true? 18 A. Yes. As long as I've been there, yes. 19 Q. When there's lower cost power available to the 20 Holland Board of Public Works than Unit 3's cost of 21 production, is Unit 3 taken off-line? 22 A. Yes. 23 Q. Is lower cost power than Unit 3 -- when there is 24 lower cost power available to the Board of Public 25 Works than Unit 3's cost of production during the</p>
<p style="text-align: right;">Page 93</p> <p>1 during the winter? Maybe you're identifying a 2 problem in my question. Let me start over. 3 Is it typical for Unit 3 to operate at full 4 load during the winter months because of the snow 5 melt system? 6 A. Yes. 7 MR. KARG: Object to the form. 8 Q. (By Mr. Bender) Is there a policy of doing that -- is 9 there a written policy for the unit operators to 10 operate the unit in order for the snow melt system to 11 work? 12 A. Not that I recall. 13 Q. Is there an understanding by the system operators 14 that they need to be running Unit 3 for the snow melt 15 system to be operating? 16 A. The way you've asked the question, Unit 3 has to 17 operate for snow melt to work, so the operators know 18 that, yes. 19 Q. They know that, okay. And is there an understanding 20 that Unit 3 needs to operate close to its full load 21 for the snow melt system to work to melt snow during 22 most winter conditions? 23 A. Unit 3, given its size and how it operates, operates 24 at a base -- a fixed load most of the time that it's 25 on irrespective of whether snow melt is operating,</p>	<p style="text-align: right;">Page 95</p> <p>1 winter, is Unit 3 taken off-line? 2 A. I would say, no. 3 Q. Is that because it needs to be operating for the snow 4 melt system to work? 5 A. Yes. 6 Q. Before 1988 when there was lower cost power available 7 to the Board than Unit 3's cost of production during 8 the winter, was Unit 3 taken off-line? 9 A. I don't have any recollection particularly before 10 1988, so I don't know. 11 Q. Does the agreement with the City for the snow melt 12 system require the Board to operate Unit 3 during the 13 winter months? 14 A. No. 15 Q. If the Board chose to shut down Unit 3 for the entire 16 winter, the snow melt system would not operate that 17 winter, right? 18 A. Well, there's also, 4 and 5 can supply a modest 19 amount of water to the snow melt system. So there 20 would be, under some modest conditions, some snow 21 melting. 22 Q. My understanding is the amount of heat that 4 and 5 23 can provide to the snow melt system is not enough to 24 melt snow during most winter conditions? 25 A. Correct.</p>

26 (Pages 92 to 95)

<p style="text-align: right;">Page 96</p> <p>1 Q. It's enough heat to keep the pipes from freezing?</p> <p>2 A. Correct.</p> <p>3 Q. So your testimony is there may be very warm winter</p> <p>4 days where the snow is not much below 32 degrees</p> <p>5 there might be some melting there, is that right, if</p> <p>6 4 and 5 are operating and 3 is not?</p> <p>7 A. Yeah. Again, 4 and 5, it's been in the past -- I</p> <p>8 can't recall a specific time, but I have seen it</p> <p>9 where 4 and 5 has been on, gone uptown to see how</p> <p>10 it's snowing, how it's performing, there's been</p> <p>11 conditions where it's done okay, but it's a light</p> <p>12 snowfall.</p> <p>13 Q. So during moderate to heavy snowfalls, operating 4</p> <p>14 and 5 is not going to melt that snow?</p> <p>15 A. Right.</p> <p>16 Q. Getting back to my question, the agreement with the</p> <p>17 City doesn't require you to operate 3 so that snow</p> <p>18 melts all winter?</p> <p>19 A. No. We don't really have an agreement per se.</p> <p>20 There's no written agreement to say Unit 3's got to</p> <p>21 operate.</p> <p>22 Q. There's no written agreement that says that snow melt</p> <p>23 has to operate; is that right?</p> <p>24 A. Right.</p> <p>25 Q. So there's heat from snow melt system that's</p>	<p style="text-align: right;">Page 98</p> <p>1 configuration of the cooling water supplied to 4 and</p> <p>2 5 and how it's configured, it would be very expensive</p> <p>3 and difficult, just expensive and time consuming to</p> <p>4 reconfigure how the cooling water for 4 and 5 is</p> <p>5 configured to reconfigure it to do what</p> <p>6 Unit 3 can do.</p> <p>7 Q. 4 and 5 are connected right now to the snow melt</p> <p>8 system?</p> <p>9 A. Yes.</p> <p>10 Q. But they're connected in a way that prevents them</p> <p>11 from supplying as much heat as Unit 3 does to the</p> <p>12 system; is that right?</p> <p>13 A. Yes.</p> <p>14 Q. And why is that?</p> <p>15 A. Unit 3 can recirculate water from the intake of the</p> <p>16 screen house back to the screen house, recirculate</p> <p>17 100 percent of that water. Unit 4 and 5 can't do</p> <p>18 that. The intake pipe on Units 4 and 5 coming from</p> <p>19 the screen house, the water intake, it's a 54-inch</p> <p>20 pipe, 4 or 5 foot diameter pipe. The pipe going back</p> <p>21 to the screen house from Units 4 and 5 is a 12-inch</p> <p>22 pipe, a much smaller pipe; as opposed to Unit 3 where</p> <p>23 the intake channel from the screen house going to</p> <p>24 Unit 3 is the same size as the discharge channel</p> <p>25 going back to discharge.</p>
<p style="text-align: right;">Page 97</p> <p>1 available to the City when it's available?</p> <p>2 A. Right.</p> <p>3 Q. There's no must serve obligation to the snow melt</p> <p>4 system?</p> <p>5 A. Right, written down. Public relations-wise, yes.</p> <p>6 Q. Is there an understanding that Unit 3 will operate</p> <p>7 during winter so that the City can use its snow melt</p> <p>8 system?</p> <p>9 A. An understanding by whom?</p> <p>10 Q. By you.</p> <p>11 A. When in the wintertime, we do what we can, obviously,</p> <p>12 to keep Unit 3 online, yes.</p> <p>13 Q. So the snow melt works?</p> <p>14 A. Yes.</p> <p>15 Q. So you don't have a public relations problem?</p> <p>16 A. Right.</p> <p>17 Q. Has there been any investigation, to your knowledge,</p> <p>18 of expanding the use of 4 and 5 for the snow melt</p> <p>19 system so that they can melt snow during heavy snow</p> <p>20 conditions?</p> <p>21 A. Yeah -- formal investigation, no study, no written</p> <p>22 report or anything, no. Has there been discussion</p> <p>23 about that, about could you do that? Yes.</p> <p>24 Q. And is that possible?</p> <p>25 A. I'm going to say practically, no, because of the</p>	<p style="text-align: right;">Page 99</p> <p>1 Q. So you can take some of the discharge and route it</p> <p>2 back into the intake --</p> <p>3 A. Yes.</p> <p>4 Q. -- is that right? Why is that important for the snow</p> <p>5 melt system?</p> <p>6 A. That causes the condenser cooling water to heat up.</p> <p>7 Q. So you're recirculating some of the hot water back</p> <p>8 in, so the total temperature of the water coming in</p> <p>9 and the water leaving is higher?</p> <p>10 A. Yes.</p> <p>11 Q. And because the size of the intake and outlet pipes</p> <p>12 for 4 and 5 condensers are different, it's hard to</p> <p>13 engineer that recirculation?</p> <p>14 A. Well, you would have to tear apart a significant part</p> <p>15 of the plant to go back and put a pipe going back to</p> <p>16 the screen house of a significant size to run a</p> <p>17 significant portion of the condenser cooling water</p> <p>18 from those two units back there.</p> <p>19 Q. So the reason that 4 and 5 are only capable of</p> <p>20 producing an amount of heat to keep the system from</p> <p>21 freezing, maybe to melt snow on light snow days, is</p> <p>22 that the water leaving the condenser is cooler than</p> <p>23 the water leaving the condenser on 3?</p> <p>24 A. If you are recirculating, yes, on Unit 3, if Unit 3</p> <p>25 is recirculating. Under normal operating conditions,</p>

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<p style="text-align: right;">Page 100</p> <p>1 no, but if you're operating snow melt and 2 recirculating water to raise the temperature, yes, 3 then there's a difference. 4 Q. The circulating water on Units 4 and 5 comes from the 5 same intake on the lake, correct? 6 A. We have a thing called a screen house, which is where 7 there are screens where the water is being -- so 3, 8 4, and 5 go -- all the water is taken in at the 9 screen house, one building that has traveling screens 10 in it. 11 Q. The pipe from the screen house to the condensers is 12 the same for 4 and 5 for a portion of the distance, 13 correct? 14 A. Yes. 15 Q. And then it splits? 16 A. Yes. 17 Q. Part of it goes to 4, part of it goes to 5? 18 A. Right. 19 Q. After the condensers, the heated water stream 20 recombines for 4 and 5? 21 A. Correct. 22 Q. And then it discharges into the lake? 23 A. Correct. 24 Q. And the utility has a water discharge permit from the 25 State for that heated water discharge; is that right?</p>	<p style="text-align: right;">Page 102</p> <p>1 recently. It used to be that that temperature was 2 only in effect in the summertime, so you had the 3 limitation in the summertime. 4 Q. I see. So because of the permit limiting the amount 5 of heat -- 6 A. Temperature. 7 Q. -- the temperature of the water, the pipe was 8 installed to maintain compliance with that limit? 9 A. Yes. 10 Q. How does the pipe maintain compliance with the limit? 11 A. Because you're mixing lake water, which we talked 12 about the temperature rise across each of the units, 13 so you add temperature to the water. You're taking 14 essentially cooler water, mixing it with warmer water 15 discharging out of the condenser, which takes the 16 average temperature of that down. 17 Q. So water comes out of the lake and before it gets to 18 the 4 and 5 condensers, some of it can be directed 19 through the dilution pipeline, correct? 20 A. Correct. 21 Q. So the water that goes through the 4 and 5 condensers 22 get heated up by the condensers? 23 A. Correct. 24 Q. The water that goes through the dilution pipeline 25 does not get heated up?</p>
<p style="text-align: right;">Page 101</p> <p>1 A. Yes. 2 Q. And there's a limit on how hot that water can be? 3 A. Yes. 4 Q. And there was a project in 1996 where a pipe was 5 installed to dilute the heat of the discharge water 6 from 4 and 5 condensers; is that right? 7 A. Right. 8 Q. That's referred to as a dilution line? 9 A. Okay. 10 Q. I'm asking. 11 A. I don't know. I can't recall if there's a specific 12 terminology somebody has given to that. 13 Q. You know what I'm talking about? 14 A. Yes, I do. Yes. 15 Q. Were you involved in that project? 16 A. Yeah. I don't have a lot of recollection 17 specifically about it. I know it was installed. I 18 know it was done and why it was done, but exactly 19 when the project was done and how it was done, no. 20 Q. What's your understanding of why the project was 21 done? 22 A. Again, to help maintain the discharge temperature 23 from Units 4 and 5, keep it below permitted limits. 24 Q. Mostly in the summertime? 25 A. I believe, and I haven't looked at the MPDS permit</p>	<p style="text-align: right;">Page 103</p> <p>1 A. Correct. 2 Q. Then when they recombine, the average temperature is 3 lower than the water coming out of the condensers? 4 A. Yes. 5 Q. And hopefully lower than the permit limit? 6 A. Well, hopefully lower than the permit limit. You're 7 still limited by the permit limit, and if that 8 doesn't work, then you have to back the units off, 9 which has happened, yes. 10 Q. By backing the units off, you mean you produce less 11 heat? 12 A. You are reducing the thermal input in the system from 13 the units. 14 Q. Meaning, you burn less coal? 15 A. Burn less coal, make less steam. 16 Q. Make less temperature? 17 A. Less temperature. 18 Q. So you're effluence is cooler? 19 A. Lower, right. 20 Q. So the pipeline was installed in 1996? 21 A. Sure. 22 Q. It wasn't installed originally with the plant? 23 A. No. 24 Q. When was the first heat limit in the water permit 25 from the State?</p>

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<p style="text-align: right;">Page 104</p> <p>1 A. I don't recall. Sometime between my coming to the 2 plant and probably '95. I don't remember the exact 3 year. When I first came to the plant, we did not 4 have a temperature limit. I think we had a heat 5 limit, a BTU limit on the discharge, but not a 6 temperature limit in '97 when I came here. So mid 7 '90s maybe. 8 Q. The permit preceded the pipe? 9 A. Yes. 10 Q. Do you know how long after the temperature limit the 11 pipeline was installed, how long after? 12 A. No. No, I don't know. 13 Q. There was a period of time that the plant was 14 operating with a temperature limit on its effluent 15 from Unit 4 and 5 condensers when it did not have the 16 dilution pipeline, correct? 17 A. I believe so, yes. 18 Q. And so how did the plant comply with its limit 19 without using the dilution pipeline? 20 A. As I just talked about, if you get to the point where 21 the lake temperature got to the point where your 22 discharge temperature was hitting that temperature 23 limit, you would back the units off. 24 Q. So because the condenser adds temperature to the lake 25 water temperature, the lake water temperature goes</p>	<p style="text-align: right;">Page 106</p> <p>1 Q. When you present projects to the Board for approval, 2 do you write them up in a standard format? 3 A. Pretty much, yes. 4 Q. And does this document follow that standard format? 5 A. Yes. 6 Q. So 8461 to 8462, that's a memo that you wrote -- 7 A. Yes. 8 Q. -- or had written at your direction? 9 A. I probably wrote it. 10 Q. And this is recommending the circulating water 11 dilution pipeline? 12 A. Yes. 13 Q. And if you look on 8461 under discussion -- 14 A. Yes. 15 Q. Do you want to take a minute to review that? 16 A. Okay. 17 Q. So this memo was dated in 1996, correct? 18 A. Correct. 19 Q. The end of the first paragraph under discussion on 20 page 8461 says, "The other method that will be used 21 this summer for not exceeding the maximum temperature 22 will be to reduce generation." Do you see that? 23 A. Yes. 24 Q. Is that discussing what we just discussed where 25 before the dilution pipeline, the method to assure</p>
<p style="text-align: right;">Page 105</p> <p>1 up, you have a smaller margin that the plant can add? 2 A. Correct. 3 Q. So you would have to back the units off in order not 4 to exceed the temperature limit? 5 A. Correct. 6 Q. Did that occur before the dilution pipeline was 7 installed? 8 MR. KARG: Object to the form. 9 A. I don't recall specifically. 10 Q. (By Mr. Bender) After the dilution pipeline was 11 installed, have there been periods when the Units 4 12 and 5 have to be backed off because they are 13 approaching the temperature limit even when using the 14 dilution pipeline? 15 A. Again, I don't recall specifically. I can tell you 16 that there have been times when Units 4 and 5 have 17 been backed off because of the temperature 18 limitation. Exactly whether that was before or 19 after, I don't recall. 20 (Deposition Exhibit 16 marked.) 21 Q. (By Mr. Bender) Mr. Howard, handing you what's marked 22 as Exhibit 16, have you seen that document before? 23 A. I must have, I signed it. 24 Q. So looking at page 8462, that's your signature? 25 A. Yes.</p>	<p style="text-align: right;">Page 107</p> <p>1 compliance with the permit limit was to reduce 2 generation, reduce heat input to the boilers? 3 A. That was the only method to do that, yes. 4 Q. And that was the method being used in the summer of 5 1996? 6 A. Yes. There was no other method to control the 7 temperature of the water being discharged from 8 Units 4 and 5. 9 Q. Having reviewed this, does that refresh your memory 10 about whether or not load on 4 and 5 was reduced 11 before the dilution pipeline to comply with heat 12 limit, temperature limit? 13 A. Is your question -- I'm not sure I understand the 14 question. Do I remember a specific time when we 15 reduced generation to meet the temperature limit? 16 No, I don't remember a specific time. 17 Q. Do you remember generally during the summer of 1996 18 whether load was reduced to meet the temperature 19 limit? 20 A. No, I don't remember whether we specifically did that 21 even in the summer of that year. 22 Q. Do you know if you did it during 1996? 23 A. No, I don't. 24 Q. So you just have a memory of having to reduce load to 25 meet temperature limits, but you don't know whether</p>

29 (Pages 104 to 107)

<p style="text-align: right;">Page 108</p> <p>1 it was during, before, or after construction of the 2 dilution pipeline? 3 A. That's correct. 4 Q. What was the cost of the dilution pipeline? Can you 5 tell from this document? 6 A. Well, the bid was \$117,752. That was the 7 recommendation written under the Recommendation 8 section. 9 Q. Are you aware of any documents that could be 10 referenced to determine whether load was reduced to 11 meet the temperature limit in the water discharge 12 permit? 13 A. Do I remember a specific written document that would 14 say we reduced temperature here on this day because 15 of the temperature limit? I don't recall a specific 16 document. It may have been in an operator's log 17 somewhere noted in the operations. 18 Q. Do the operators keep a narrative log of events 19 occurring at the plant on a daily basis? 20 MR. KARG: Object to the form. 21 A. I know they used to. Whether they currently do or 22 not, I don't know. 23 Q. (By Mr. Bender) When they used to, before you were 24 promoted to operations manager, what type of 25 information would be included in the operation's log?</p>	<p style="text-align: right;">Page 110</p> <p>1 A. I cannot. 2 Q. Are you aware of a project on Unit 5 that occurred in 3 1990 that involved replacing generating bank tubes 4 and economizer tubes? 5 A. I remember it quite well, the economizer. I'm not 6 sure I remember the generating bank. 7 Q. Let's start with the economizer. What do you 8 remember about the economizer? 9 A. Again, the particular details of whether the unit 10 came off-line because of a leak in the economizer, I 11 think we found it on a routine annual outage and went 12 in the -- when you go down for your regular 13 maintenance on a unit, you're climbing through the 14 boiler looking in the boiler, looking at many 15 different things, many passes of the boilers. I 16 recall being in the economizer itself and there's a 17 bank of tubes in there that water is going through to 18 extract heat from the combustion process, and seeing 19 that the exhaust from the boilers coming through the 20 economizer, and so there is fly ash in that, and fly 21 ash is abrasive and seeing tubes that were, I'll call 22 severely cut. They weren't all the way through, but 23 severely cut by the flow of fly ash going by it to 24 the point you needed to fix it or you were going to 25 have a leak in the economizer.</p>
<p style="text-align: right;">Page 109</p> <p>1 A. Events, trips in the boiler, other things not 2 necessarily relevant to the operations of the plant 3 because the operators take messages from outside 4 also. But things that operated -- you know, 5 significant things that operated the plant that they 6 thought -- things they thought were significant, they 7 may say price of power was taking a unit off-line 8 because of this or we're blowing soot. 9 Q. If the boiler was brought off-line to repair a tube 10 leak, would they note that in the log? 11 A. I'm sure they would. 12 Q. Other than the operator's log, can you think of any 13 other category of documents where information about 14 reducing load to meet temperature limits in the water 15 permit may be located? 16 A. I can't specifically recall anything. I think we did 17 a quarterly report to the MDNRE DQ in the past. 18 There generally you're just talking about 19 compliance. I don't know that we would have reported 20 we reduced load to meet the limit. I don't think 21 that we would have reported there. It wouldn't have 22 been relevant to the report. They just want to know 23 if you meet your limits or not meet your limits. 24 Q. Other than those two categories, you can't think of 25 anything else?</p>	<p style="text-align: right;">Page 111</p> <p>1 Q. Did leaks in the economizer occur prior to the 2 replacement project? 3 A. Can I remember a specific one? No. Have they? I 4 can't imagine that there weren't. 5 Q. You would assume that there were? 6 A. I would assume there were. 7 Q. Are the economizer tubes in Unit 5 fin tubes? 8 A. I don't believe they are. 9 Q. Were they prior to 1990? 10 A. They may have been finned, yes. 11 Q. But you don't think they are today? 12 A. I don't recall. 13 Q. So you don't recall whether the project in 1990 14 replaced fin tubes with non-fin tubes? 15 A. No, I don't recall that. My guess is they were 16 finned initially, but I just don't recall what was in 17 there -- what was put back in, put it that way. 18 Q. You don't recall what was in there originally or what 19 was put back in? 20 A. Not really. When you say finned tubes, that sounds 21 familiar, sounds right. 22 Q. Okay. When an economizer tube develops a leak, does 23 a unit have to be brought down to fix that? 24 A. Yes. 25 Q. Does it need to be brought down immediately to fix</p>

30 (Pages 108 to 111)